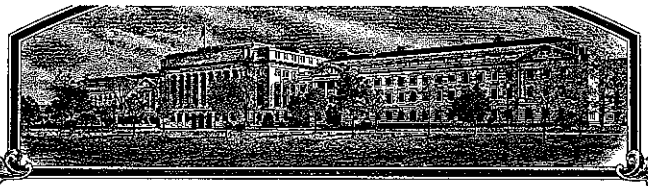
No. 200500001



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Idaho Agricultural Experiment Station, University of Idaho

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Simon'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this twenty-fourth day of March, in the year two thousand and five.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Idaho Agricultural Experiment Station, University of Idaho

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
ID91-34302A

3. VARIETY NAME
Simon

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
Idaho Agricultural Experiment Station
College of Agriculture
University of Idaho
Moscow, ID 83844-2337

5. TELEPHONE *(include area code)*
208-885-7173

6. FAX *(include area code)*
208-885-6654

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PVPO NUMBER
2005 00001

FILING DATE
October 4, 2004

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Land Grant College

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 3652.00
DATE 10/4/2004

CERTIFICATION FEE:
$ 432.00
DATE 1-10-2005

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Gregory A. Bohach
Idaho Agricultural Experiment Station
College of Agriculture
University of Idaho
Moscow, ID 83844-2331

Robert S. Zemetra
PSES
University of Idaho
Moscow, ID 83844-2331

11. TELEPHONE (Include area code)
208-885-7173

12. FAX (Include area code)
208-885-6654

13. E-MAIL
agres@uidaho.edu

14. CROP KIND *(Common Name)*
soft white winter wheat

16. FAMILY NAME *(Botanical)*
Triticeae

15. GENUS AND SPECIES NAME OF CROP
Triticum aestivum

17. IS THE VARIETY A FIRST GENERATION HYBRID?
X YES NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? ***(OPTIONAL)***
☐ YES X NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
(Follow instructions on reverse)
a. X Exhibit A. Origin and Breeding History of the Variety
b. X Exhibit B. Statement of Distinctness
c. X Exhibit C. Objective Description of Variety
d. X Exhibit D. Additional Description of the Variety *(Optional)*
e. X Exhibit E. Statement of the Basis of the Owner's Ownership
f. X Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. X Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
X YES *(If "yes", answer items 21 and 22 below)* ☐ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
X YES ☐ NO
IF YES, WHICH CLASSES? X FOUNDATION X REGISTERED X CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES X NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
X YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES X NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
G Bohach		Robert S. Zemetra	
NAME *(Please print or type)*		NAME *(Please print or type)*	
Gregory A. Bohach		Robert S. Zemetra	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Experiment Station Director	10/1/04	Professor	9/30/04

INSTRUCTIONS

(See reverse for instructions and information collection burden statement)

2005 00001

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

Foundation seed of Simon was sold October 7, 2004 by the Idaho Foundation Seed Program

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

EXHIBIT A: ORIGIN AND BREEDING HISTORY OF SIMON

Simon originated from a F_4 headrow from the cross 'Haven'/'Lambert'//'Madsen' made in 1991. Haven is a soft red biscuit wheat from Nickerson Seed Inc. (formerly PBI), UK. Lambert is a soft white common winter wheat released jointly by the Idaho Agricultural Experiment Station, the Oregon Agricultural Experiment Station and the Washington Agricultural Experiment Station (4). Madsen is a soft white common winter wheat developed by the USDA-ARS, Pullman, WA (1) and carries the *Pch1* gene for resistance to strawbreaker footrot (caused by *Pseudocercosporella herpotrichoides* (Fron) Deighton). The Haven'/'Lambert'//'Madsen' population was designated as ID91-343 and was bulked in the $F_1 - F_3$ generations. The selected F_4 headrow was designated ID91-34302A and selected based on stripe rust resistance, uniformity in height, percent whole grain protein and grain hardness based on NIR (near-infrared) evaluation. ID91-34302A was then evaluated for 7 years in replicated yield trials. The $F_5 - F_8$ generations were evaluated for stripe rust resistance, height, heading date, test weight, and the end-use quality parameters percent flour protein, NIR hardness, percent flour yield, percent break flour yield, sugar snap cookie diameter and percent flour ash. In addition, ID91-34302A was evaluated in the F_6 generation for resistance to strawbreaker footrot and was determined to carry the same level of resistance to the disease as Madsen wheat by T. Murray, Washington State University. In 1999, ID91-34302A was entered in the Western Regional White Winter Wheat Nursery and evaluated for three years. In 2003, ID91-34302A was evaluated by the Pacific Northwest Wheat Quality Council for its end-use quality. Heads were collected in 1999 and were grown during the 1999-2000 growing season at Moscow, Idaho to produce the pre-breeder seed generation. Simon

was approved for release by the Idaho Foundation Seed Stocks Committee in 2003. Simon has been examined for uniformity and absence of segregation since it was placed in advanced line testing in 1997. It was observed to be uniform and stable over three generations of seed increase (pre-breeder – 2000, breeder – 2001, and foundation – 2003). No variants for phenotypic characteristics such as height or head morphology have been observed in foundation fields of Simon.

EXHIBIT B: NOVELTY STATEMENT FOR SIMON WHEAT

Simon is intended for the moderate to high rainfall areas of the Pacific Northwest and is most similar to the soft white winter wheat cultivar Madsen (1). Both Simon and Madsen carry *Pch1*, the gene for resistance to strawbreaker foot rot (caused by *Pseudocercosporella herpotrichoides* (Fron) Deighton) and both cultivars show a similar level of resistance to the disease. Simon and Madsen can be easily differentiated through the use of molecular markers. Using SSR markers developed by Röder et al. (3), Simon can be differentiated from Madsen based on base pair size of PCR product for the markers shown in Exhibit B, Table 1. Reaction solution for all marker related primers was 1X *Taq* buffer, 1.5 mM $MgCl_2$, 0.0 mM dNTPs, 0.5 mM forward primer, 0.5 mM reverse primer, and 0.05 units/ul *Taq* polymerase. Polymerase chain reaction was run on an MJ Engine thermalcycler (MJ Research Inc, Waltham, MA). DNA from both cultivars was first denatured at 95 C for 2 minutes then cycled at 95 C for 30 seconds, annealing temp (see Exhibit B Table 1 for annealing temperature for each marker) for 30 seconds, 72 C for 30 seconds for 35 cycles followed by a 72 C extension for 3 minutes. The number of base pairs for the PCR products was determined on an ABI 3100 DNA sequencer (Applied Biosystems, Foster City, CA). Approximate base pair size for the PCR products for Simon and Madsen are shown in Exhibit B Table 1.

Table 1. List of molecular markers and base pair size of PCR products that differentiate Simon soft white winter wheat from Madsen soft white winter wheat.

molecular marker	chromosome location	base pair repeat	annealing temp	PCR product size (bp) Simon	Madsen
gwm 389	3B	(CT)11 (T)2 (CT)21	60	137	118
gwm 337	1D	(CT)5 (CACT)6 (CA)43	55	188	181
gwm 148	2B	(CA)22	60	162	160
gwm 458	1D	(CA)13	60	110	108
gwm 437	7D	(CT)24	50	116	106
gwm 469	6D	(CT)19 (CA)10	60	173	144
gwm 190	5D	(CT)22	60	209	211

REPRODUCE LOCALLY. Include form number and date on all reproductions. Form Approved OMB NO 0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Wheat (*Triticum* spp.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Idaho Agricultural Experiment Station, University of Idaho	91-34302A	Simon

ADDRESS *(Street and No. or RD No., City, State, Zip Code and Country)*
Gregory A. Bohach
Idaho Agricultural Experiment Station
University of Idaho
Moscow, ID 83844-2337

FOR OFFICIAL USE ONLY

PVPO NUMBER
2005 00001

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., [0][9][9] or [0][9]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: Munsell Color Charts. Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

[1]
1 = Common
2 = Durum
3 = Club
4 = Other (Specify) _____

2. VERNALIZATION:

[2]
1 = Spring
2 = Winter
3 = Other (Specify) _____

3. COLEOPTILE ANTHOCYANIN:

[1] 1 = Absent 2 = Present

4. JUVENILE PLANT GROWTH:

[2] 1 = Prostrate 2 = Semi-Erect 3 = Erect

5. PLANT COLOR: (boot stage)

[2]
1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF: (boot stage)

[2] 1 = Erect 2 = Recurved
[2] 1 = Not Twisted 2 = Twisted
[2] 1 = Wax Absent 2 = Wax Present

7. EAR EMERGENCE:

[1][6][7] Number of Days (Average)
[0][2] Number of Days Earlier Than * Madsen
Same As *
[0][1] Number of Days Later Than * Brundage 96
*Relative to a Commercial Variety Grown in the Same Trial

8. ANTHER COLOR:

[1] 1 = Yellow 2 = Purple

9. PLANT HEIGHT: (from soil to top of head, excluding awns)

[0][8][5] cm (Average)

[0][5] cm Taller Than Brundage 96 *

Same As _____ *

[1][0] cm Shorter Than Hubbard *

10. STEM:

A. ANTHOCYANIN

[1] 1 = Absent 2 = Present

B. WAXY BLOOM

[2] 1 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

[1] 1 = Absent 2 = Present

D. INTERNODE

[1] 1 = Hollow 2 = Semi-Solid 3 = Solid

[3] Number of Nodes

E. PEDUNCLE

[1] 1 = Erect 2 = Recurved 3 = Semi-Erect

[3][5] cm Length

F. AURICLE

[1] Anthocyanin 1 = Absent 2 = Present

[2] Hair: 1 = Absent 2 = Present

11. HEAD: (at maturity)

A. DENSITY

[3] 1 = Lax
2 = Mid-dense (Laxidense)
3 = Dense

B. SHAPE

[2] 1 = Tapering
2 = Strap
3 = Clavate
4 = Other (Specify) _____

C. CURVATURE

[2] 1 = Erect
2 = Inclined
3 = Recurved

D. AWNEDNESS

[4] 1 = Awnless
2 = Apically Awnletted
3 = Awnletted
4 = Awned

12. GLUMES: (at maturity)

A. COLOR

[1] 1 = White
2 = Tan
3 = Other (Specify) _____

B. SHOULDER

[1] 1 = Wanting 2 = Oblique
3 = Rounded 4 = Square
5 = Elevated 6 = Apiculate
7 = Other (Specify) _____

C. SHOULDER WIDTH

[1] 1 = Narrow
2 = Medium
3 = Wide

D. BEAK

[3] 1 = Obtuse
2 = Acute
3 = Acuminate

E. BEAK WIDTH

[1] 1 = Narrow
2 = Medium
3 = Wide

F. GLUME LENGTH

[3] 1 = Short (ca. 7mm)
2 = Medium (ca. 8mm)
3 = Long (ca. 9mm)

G. WIDTH

[3] 1 = Narrow (ca. 3mm)
2 = Medium (ca. 3.5mm)
3 = Long (ca. 4mm)

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13. SEED:

A. SHAPE

[1] 1 = Ovate
2 = Oval
3 = Elliptical

B. CHEEK

[1] 1 = Rounded
2 = Angular

C. BRUSH

[3] 1 = Short
2 = Medium
3 = Long

[1] 1 = Not Collared
2 = Collared

D. CREASE

[1] 1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

[3] 1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

E. COLOR

[1] 1 = White
2 = Amber
3 = Red
4 = Other (Specify) _____

F. TEXTURE

[2] 1 = Hard
2 = Soft
3 = Other (Specify) _____

G. PHENOL REACTION

[4] 1 = Ivory
2 = Fawn
3 = Light- Brown
4 = Dark- Brown
5 = Black

H. SEED WEIGHT

[3][9] g/1000 Seed (whole number only)

I. GERM SIZE

[2] 1 = Small
2 = Mid-Size
3 = Large

14. DISEASE: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

[0] Stem Rust (*Puccinia graminis* f. sp. *tritici*)
[2] Stripe Rust (*Puccinia striiformis*)
[0] Tan Spot (*Pyrenophora tritici-repentis*)
[0] Halo Spot (*Selenophoma donacis*)
[0] *Septoria nodorum* (Glume Blotch)
[0] *Septoria avenae* (Speckled Leaf Disease)
[0] *Septoria tritici* (Speckled Leaf Blotch)
[0] Scab (*Fusarium* spp.)
[0] "Black Point" (Kernel Smudge)
[0] Barley Yellow Dwarf Virus (BYDV)
[0] Soilborne Mosaic Virus (SBMV)
[0] Wheat Yellow (Spindle Streak) Mosaic Virus
[0] Wheat Streak Mosaic Virus (WSMV)
[2] Other (Specify) Pseudocercosporella foot rot
[3] Other (Specify) Cephalosporium stripe
[ ] Other (Specify) _____

[0] Leaf Rust (*Puccinia recondita* f. sp. *tritici*)
[0] Loose Smut (*Ustilago tritici*)
[0] Flag Smut (*Urocystis agropyri*)
[0] Common Bunt (*Tilletia tritici* or T. *laevis*)
[1] Dwarf Bunt (*Tilletia controversa*)
[0] Karnal Bunt (*Tilletia indica*)
[0] Powdery Mildew (*Ersiphe graminis* f. sp. *tritici*)
[0] "Snow Molds"
[0] Common Root Rot (*Fusarium, Cochliobolus* and *Bipolaris* spp.)
[0] Rhizoctonia Root Rot (*Rhizoctonia solani*)
[0] Black Chaff (*Xanthomonas campestris* pv. *translucens*)
[0] Bacterial Leaf Blight (*Pseudomonas syringae* pv. *syringae*)
[ ] Other (Specify) _____
[ ] Other (Specify) _____
[ ] Other (Specify) _____
[ ] Other (Specify) _____

15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

[1] Hessian Fly (*Mayetiola destructor*)
[0] Stem Sawfly (*Cephus* spp.)
[1] Cereal Leaf Beetle (*Oulema melanopa*)

[ ] Other (Specify) _____
[ ] Other (Specify) _____
[ ] Other (Specify) _____

15. INSECT: (continued) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant

PLEASE SPECIFY BIOTYPE (Where Needed)

2005 00001

[0] Russian Aphid (*Diuraphis noxia*)

[0] Greenbug (*Schizaphis graminum*)

[1] Aphids

[ ] Other (Specify) _____

[ ] Other (Specify) _____

[ ] Other (Specify) _____

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

EXHIBIT D. ADDITIONAL DESCRIPTION OF SIMON

Simon is a semi-dwarf wheat that is similar in height to Madsen (Exhibit D Tables 2 and 3). Simon is green in color (4/4 chroma 7.5 GY hue based on Munsell Book of Color) with semi-erect flag leaves. Heading date for Simon is 2-3 days earlier than that observed with Madsen (Exhibit D Table 1) under rainfed conditions in northern Idaho and about one day earlier than Madsen under irrigated conditions. Simon has good to excellent straw strength showing a similar lodging response as Madsen under rainfed and irrigated conditions. Glumes of Simon are awned and seed is intermediate in size, white and soft. Simon was tested as ID91-34302A in the Western Regional White Winter Wheat Nursery for three years (2000-2002).

Simon is high yielding under both rainfed and irrigated conditions (Exhibit D Table 1). It equals or exceeds the yield of Madsen in 4 to 5 years of advanced yield testing with a 5 year (29 site/years) average of 6901 kg ha^{-1} rainfed and a 5 year (14 site/year) average of 10,048 kg ha^{-1} irrigated compared to 6699 kg ha^{-1} rainfed and 9134 kg ha^{-1} irrigated for Madsen. In the Western Regional Uniform White Winter Wheat Nursery, Simon had a slightly greater yield (7152 kg ha^{-1}) than Madsen (6861 kg ha^{-1}) over 3 years of testing (36 site/years) (Exhibit D Table 2).

Simon had a similar test weight compared to Madsen under both rainfed and irrigated conditions (Exhibit D Table 1). In 5 years of advanced testing, Simon had an average test weight of 759 kg m^{-3} rainfed and 764 kg m^{-3} irrigated compared to 758 kg m^{-3} rainfed and 754 kg m^{-3} irrigated for Madsen. In the Western Regional Uniform White Winter Wheat Nursery (Exhibit D Table 2), Simon's test weight (766 kg m^{-3}) was similar to that of Madsen (768 kg m^{-3}).

Simon has good end-use quality for a soft white winter wheat. Percent flour protein is similar to that found for other soft white winter wheat cultivars being, on average, less than that found in Madsen (Exhibit D Tables 3 and 4). For kernel hardness, Simon is similar to Madsen in the advanced yield trials (Exhibit Table 3). Break flour yield for Simon is favorable, being similar to or greater than Madsen in advanced (Exhibit D Table 3) and regional yield trials (Exhibit D Table 4). Percent flour ash was also similar for the two cultivars (Exhibit D Tables 3 and 4). For end-use quality, Simon had a similar cookie diameter to Madsen, being slightly greater than Madsen over 5 years of testing in Idaho (Exhibit D Table 3) and equal to Madsen in 3 years of regional testing (Exhibit Table 4). For sponge cake volume, Simon was similar to Madsen over three years of regional testing (Exhibit D Table 4). In Pacific Northwest Wheat Quality Council testing, Simon was found to have acceptable end-use quality for a soft white winter wheat.

Simon has moderate resistance to stripe rust (caused by *Puccinia striiformis* Westend.) based on regional testing (Exhibit D Table 5). Simon has high temperature adult plant resistance to stripe rust based on results from Mt. Vernon, WA (Exhibit D Table 8). Simon has moderate resistance to strawbreaker footrot (caused by *Pseudocercosporella herpotrichoides* (Fron) Deighton) similar to that found in Madsen. In two inoculated field trials (Exhibit D Table 6), Simon showed little reduction in yield and had a similar number of white heads and lodging as Madsen. Simon appears to have an intermediate level of tolerance to Cephalosporium stripe (caused by *Hymenula cerealis* Ellis & Everh.) based on inoculated field results (Exhibit D Table 7). Simon had a similar percentage of height reduction to Madsen but a greater number of white heads.

For both traits, Simon was superior to the susceptible check 'Stephens' (2). Simon is moderately susceptible to dwarf bunt (caused by *Tilletia controversa* Kühn in Rabenh.).

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Table 1. Heading date, yield and test weight comparison between Simon and Madsen for the Idaho yield trial (IYT) grown under rainfed and irrigated conditions in Idaho from 1998 to 2002. Heading date (hd. date) is based on the Julian calendar, yield is based on kg ha^{-1} and test weight is based on kg m^{-3}.

hd. date-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
cultivar												
Simon	162	169	166	169	165	165	171	166	169	168	166.6	167.4
Madsen	165	172	168	168	167	165	174	167	172	170	169.2	168.4

Yield-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	8071.2	9349.1	5986.1	10694.3	7936.7	11501.5	5717.1	9214.6	6793.3	9483.7	6900.9	10048.6
Madsen	8138.5	8743.8	5986.1	10021.7	7465.9	10896.1	5582.6	7936.7	6322.4	8071.2	6699.1	9133.9

test wt - IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	754	781	757	762	768	775	770	762	745	740	759	764
Madsen	754	764	748	754	777	773	766	761	744	718	758	754

Table 2. Mean agronomic performance of Simon and Madsen in the Western Regional Uniform White Winter Wheat Nursery 2000-2002. Height is based on centimeters (cm), heading date is based on the Julian calendar, yield is based on kg ha^{-1} and test weight is based on kg m^{-3}.

2000 - 14 sites	height	heading date	yield	test weight
Simon	91	154	8609.3	781
Madsen	91	156	7936.7	784
2001 - 11 sites	**height**	**heading date**	**yield**	**test weight**
Simon	79	156	6591.5	773
Madsen	76	157	6389.7	772
2002 - 11 sites	**height**	**heading date**	**yield**	**test weight**
Simon	91	158	6255.2	743
Madsen	91	160	6255.2	749
3 yr mean - 36 sites	**height**	**heading date**	**yield**	**test weight**
Simon	87	156.0	7152.0	766
Madsen	86	157.7	6860.5	768

Table 3. End-use quality data for Simon and Madsen from the Idaho yield trial IYT grown under irrigated and rainfed conditions in Idaho from 1998 to 2002. Number of sites per year is indicated below each

% flr pro.-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	7.6	8.7	9.1	8.5	7.6	7.6	7.4	10.2	8.5	8.2	8.0	8.6
Madsen	9.2	9.4	9.3	8.3	7.8	8.5	7.6	10.6	9.1	9.5	8.6	9.3

NIR hard-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	30.2	28.5	23.2	20.7	24.5	22.3	12.6	10.4	3.8	5.0	18.9	17.4
Madsen	30.3	34.1	21.5	28	26.8	26.7	14.8	9.7	1.0	7.6	18.9	21.2

% break flour-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	35.7	35.1	40.0	40.0	41.8	35.4	35.0	36.3	37.8	37.5	38.1	36.9
Madsen	36.5	37.0	42.0	42.2	41.6	35.5	35.8	34.5	37	38.9	38.6	37.6

Abbreviations: % flr pro. – percent flour protein, NIR hard – hardness determined by near infrared analysis, and % break flour – percent break flour yield

Table 3 (continued). End-use quality data for Simon and Madsen from the Idaho yield trial IYT grown under irrigated and rainfed conditions in Idaho from 1998 to 2002.

% flr yld-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	68.4	71.0	66.7	67.2	69	69.9	67	65.9	70.0	71.5	68.2	69.1
Madsen	67.1	70.2	66.5	67.2	68.3	69.4	67.5	64.3	69.0	68.9	67.7	68.0

Cookie dia.-IYT	1998 rainfed	1998 irrigated	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	5 yr mean rainfed	5 yr mean irrigated
number of sites	5	2	6	3	5	3	6	3	7	3	29	14
cultivar												
Simon	8.8	8.9	8.4	8.4	8.8	8.5	8.4	8.5	8.4	8.6	8.6	8.6
Madsen	8.4	8.7	8.4	8.5	8.6	8.5	8.2	8.4	8.3	8.2	8.4	8.5

Flour ash- IYT	1999 rainfed	1999 irrigated	2000 rainfed	2000 irrigated	2001 rainfed	2001 irrigated	2002 rainfed	2002 irrigated	4 yr mean rainfed	4 yr mean irrigated
number of sites	6	3	5	3	6	3	7	3	25	12
cultivar										
Simon	0.382	0.421	0.355	0.409	0.375	0.341	0.343	0.348	0.364	0.380
Madsen	0.380	0.432	0.352	0.379	0.353	0.346	0.369	0.355	0.364	0.378

Abbreviations: % flr yld – percent flour yield, Cookie dia – sugar snap cookie diameter in centimeters, and Flour ash – flour ash (% by weight).

Table 4. End-use quality data of Simon and Madsen from the Western Regional Uniform White Winter Wheat Nursery 2000 – 2002.

2000	% pro-W	% pro-F	UWHRD	SK hard	SK wt	SK size	F yield	BF yield	FASH	RVA	CODI	CAVOL
Simon	10.4	8.4	31	29.5	43.1	2.6	69.9	48.5	0.38	113	9.1	1175
Madsen	10.1	8.3	29	29.0	44.5	2.5	68.9	47.8	0.38	119	9.2	1195

2001	% pro-W	% pro-F	UWHRD	SK hard	SK wt	SK size	F yield	BF yield	FASH	RVA	CODI	CAVOL
Simon	11.3	9.1	28	36.1	38.0	2.3	70.0	50.2	0.43	105	9.1	1205
Madsen	12.1	10.0	21	33.9	38.1	2.4	69.2	49.4	0.43	115	9.2	1200

2002	% pro-W	% pro-F	UWHRD	SK hard	SK wt	SK size	F yield	BF yield	FASH	RVA	CODI	CAVOL
Simon	12	9.8	16	26.7	35.2	2.4	68.4	47.4	0.46	99	9.3	1240
Madsen	12	9.7	16	31.6	33.5	2.4	67.1	47.2	0.43	109	9.3	1220

3 yr mean	% pro-W	% pro-F	UWHRD	SK hard	SK wt	SK size	F yield	BF yield	FASH	RVA	CODI	CAVOL
Simon	11.2	9.1	25.0	30.8	38.8	2.4	69.4	48.7	0.42	105.7	9.2	1207
Madsen	11.4	9.3	22.0	31.5	38.7	2.4	68.4	48.1	0.41	114.3	9.2	1205

Abbreviations: % pro-W – percent whole grain protein, % pro-F – percent flour protein, UWHRD – NIR hardness, SK hard – single kernel hardness, SK size – single kernel wt. (mg), SK size – single kernel size (mm), F yield – percent flour yield, BF yield – percent break flour, FASH – flour ash (% by weight), RVA – starch paste viscosity, CODI – cookie diameter (cm), and CAVOL – sponge cake volume (cc).

Table 5. Comparison of Simon and Madsen's response to stripe rust (*Puccinia striiformis*) in the Western Regional Uniform White Winter Wheat Nursery.

2001	loc 1	loc 4	loc 5	loc 5
	stage 7	stage 7	stage 3	stage 4-5
cultivar	% / type	% / type	% / type	% / type
Simon	00 / 0	00 / 0	20 / 8	10 / 2
Madsen	00 / 0	00 / 0	02 / 2	02 / 2

2002	loc 1	loc 2	loc 4	loc 5	loc 5
	stage 7	stage 7	stage 7	stage 2	stage 6
cultivar	% / type	% / type	% / type	% / type	% / type
Simon	05 / 8	05 / 5	05 / 8	20 / 5	20 / 5
Madsen	00 / 0	00 / 0	00 / 0	05 / 2	10 / 5

Locations in WA: 1 - Spillman Farm, 2 - Observation Hill, 4 - Witlow Farm, 5 - Mt. Vernon

Table 6. Response of Simon, Madsen and Stephens to Pseudocercosporella foot rot (*Pseudocercosporella herpitricoides*) in inoculated trials. In the 2000 Pullman foot rot trial there were two treatments, inoculated plus the fungicide Benylate (inoc + ben) and inoculated without fungicide (inoc). Two types of damage were reported, lodging based on a 0 to 9 scale with increasing values indicating increased lodging and percent white heads (white hds). In the 2003 Moscow inoculated trial only damage ratings were taken

2000 - Pullman foot rot trial - Western Regional Uniform White Winter Wheat Nursery

cultivar	yield inoc+ben (kg ha^{-1})	yield inoc (kg ha^{-1})	lodging inoc+ben (0-9)	lodging inoc (0-9)	white hds (%)
Simon	10,022	10,022	1	1	4
Madsen	9,753	8,744	1	1	4
Stephens	9,618	8,273	1	3	15

2003 - Moscow inoculated trial

cultivar	white hds inoc (%)	lodging inoc (0-9)
Simon	0.6	0
Madsen	0.3	0.3

Table 7. Response of Simon, Madsen and Stephens to Cephalosporium stripe (*Hymenula cerealis*) in the 2003 inoculated trial grown in Moscow, Idaho. Two types of damage was recorded, percent white heads (white hds) within the row and the percent tall plants and percent short plants observed.

cultivar	white hds %	height low (cm)	height low (%)	height high (cm)	height high (%)
Simon	30	59.7	50	90.7	50
Madsen	10	59.7	50	88.9	50
Stephens	80	58.4	85	86.4	15

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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Idaho Agricultural Experiment Station, University of Idaho	91-34302A	Simon
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
Gregory Bohach Idaho Agricultural Experiment Station University of Idaho Moscow, ID 83844-2337	(208) 885-1753	(208) 885-6654
	7. PVPO NUMBER	2005 00001

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☑ **YES** ☐ **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☑ **YES** ☐ **NO**

10. Is the applicant the original owner? ☑ **YES** ☐ **NO** **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ **YES** ☐ **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ **YES** ☐ **NO** **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

The original crosses were made at the University of Idaho by Robert S. Zemetra as an employee of the University of Idaho and the Idaho Agricultural Experiment Station.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

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